

BIBLIOGRAPHY

C. FITZHUGH TALMAN, in Charge of Library

RECENT ADDITIONS

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

- Andrus, C. G.** Notes on line squalls. p. 8-12. 21 cm. (Nat. air pilots assoc. journ. Cleveland. v. 2, no. 6, Apr., 1929.)
- Annales du service botanique . . . de Tunisie.** Tunis. 1928. ii. . 222 p. illus. 25½ cm. (Tome 5, fasc. 2, 1928.) [Contains articles on solar radiation.]
- Apia observatory. Samoa.** Observations of upper air-currents at Apia, Western Samoa . . . 2d ser . . . Wellington. 1929. 79 p. figs. 25 cm.
- Boeuf, F. & Amiable, J.-V.** Evaluation du coefficient de transmission de l'atmosphère pour la radiation solaire (1^{er} septembre 1924 au 31 août 1926) au service botanique de Tunisie. Paris. n. d. 8 p. figs. 24½ cm. (Compte rendu au Congr. Constantine 1927 de l'assoc. franç. pour l'avance. sci.)
- Bureau, Robert.** Relations entre les parasites atmosphériques et les phénomènes météorologiques. Bruxelles. 1928. 10 p. figs 30 cm. (Union inter. radiotél. sci. Recueil des trav. de l'assemb. gen. Washington. Oct., 1927.)
- Carpenter, Ford A.** Air pilot and the weather. unp. illus. 25½ cm. (Repr.: Western flying, v. 4, no. 2, Feb., 1928.)
- Surveying the roadbeds of the air. (2d ed.) unp. illus. 25 cm. South. Cal. bus., v. 6, no. 11, Dec., 1927.)
- Commission de météorologie agricole.** Rapport du président à la réunion de la Commission . . . a Copenhague septembre 1929. Stockholm. 1929. 29 p. 24½ cm.
- Duncan, Richard.** Air navigation and meteorology. 3d ed. Chicago. 1929. 246 p. illus. maps. diagrs. 20 cm.
- International commission for the study of clouds.** Atlas international provisoire des nuages et des états du ciel. Paris. 1929. 3, 76 p. figs. plates. 32 cm.
- Lewis, W. W.** Transmission line insulation and field tests pertaining to lightning. [Paris.] n. d. 38 p. figs. 24½ cm. (Internat. confer. on large elec. systems. Paris. 1929.)
- 551.590.2*
- SOLAR OBSERVATIONS**
- SOLAR AND SKY RADIATION MEASUREMENTS DURING JULY, 1929**
- By HERBERT H. KIMBALL, *Solar Radiation Investigations*
- For reference to descriptions of instruments and exposures, and an account of the method of obtaining and reducing the measurements, the reader is referred to the January, 1929, REVIEW, page 26.
- Table 1 shows that solar radiation intensities averaged above the normal values for July at Washington, D. C., and Madison, Wis., and below normal values at Lincoln, Nebr.
- Lugeon, Jean.** Précipitations atmosphériques, écoulement et hydroélectricité. I. Études d'hydrologie dans la région des Alpes. 2. Essai d'une formule donnant l'écoulement en fonction des précipitations. Paris. 1928. 366 p. figs. plate, (fold.) 25½ cm. (Pub. Inst. féd. de mét. et de l'Assoc. suisse pour l'aménagement des eaux, fasc. no. 16.)
- McEwen, George F.** Ocean surface drift in the Pacific coastal belt off North America. p. 191-198. 23 cm. (Repr.: Proc. 3rd Pan-Pacific sci. cong., Tokyo, 1926.)
- Pardé, Maurice.** Les crues du Rhône en décembre 1925 et février 1928. p. 3-46. figs. 24½ cm. (Les études Rhodaniennes. Lyon. T. quatr. 1928.)
- Quayle, E. T.** Long range rainfall forecasting from tropical (Darwin) air pressures. Melbourne. n. d. p. 160-164. figs. 24½ cm. (Repr.: Proc. Roy. soc., Victoria. v. 41, pt. 2. (new ser.) 1929.)
- Richardson, L. F.** Atmospheric diffusion shown on a distance-neighbour graph. p. 709-737. figs. 25½ cm. (Proc. Roy. soc., A, v. 110, 1926.)
- Search for the law of atmospheric diffusion. Leipzig. 1929. p. 24-29. 25½ cm. (Beitr. der Phys. der freien Atmos., Sonderab.: "Hergesell-Festschrift.")
- Riel, P. M. van.** Influence of sea disturbance on surface temperature. Amsterdam. [1928.] 17 p. plate (fold.) 24½ cm. (K. Ned. met. inst. no. 102. Meded. en verh. 30.)
- Selga, Miguel.** Hail in the Philippines. Manila. 1929. 20 p. fig. 29½ cm.
- Talmage, Sterling B.** Spoor of a thunderbolt. p. 1-3, 5. illus. 27½ cm. (Utah engin., v. 3, no. 10, July, 1929.)
- U. S. Bureau of standards.** Code for protection against lightning . . . Washington. 1929. xiii, 114 p. plates. 20½ cm. (Misc. pub. no. 92.)
- Watson, R. A.** Cyclone season 1927-1928 at Mauritius. 4 p. fig. plates. 32½ cm. (Misc. pub. Roy. Alfred observ., no. 7.)
- Watt, R. A. Watson.** Directional recording of atmospherics. p. 596-610. figs. 28 cm. (Journ. inst. elec. engin., v. 64, May, 1926.)

Table 2 shows an excess in the total solar radiation, (direct + diffuse), received on a horizontal surface at Washington and Madison, and a deficiency at Lincoln, Chicago, and New York.

Skylight polarization measurements obtained on three days at Washington give a mean of 53 per cent and a maximum of 61 per cent on the 17th. At Madison, measurements obtained on 11 days give a mean of 62 per cent and a maximum of 65 per cent. The values obtained at Madison are close to the averages for that station for July, while those for Washington are slightly above the corresponding July averages.

TABLE 1.—*Solar radiation intensities during July, 1929*

[Gram-calories per minute per square centimeter of normal surface]

Washington, D. C.

Date	Sun's zenith distance										Local mean solar time
	8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	
	75th meridian time	Air mass									
A.M.	P.M.										e.
e.	5.0	4.0	3.0	2.0	1.0	2.0	3.0	4.0	5.0		e.
mm.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mm.	
July 3.....	7.57	0.77	0.82	0.92	1.12	1.32	1.11	—	—	6.50	
July 8.....	10.89	—	—	—	—	—	—	—	—	17.37	
July 10.....	17.37	—	—	—	0.94	1.22	—	—	—	15.11	
July 13.....	15.11	—	—	0.54	—	—	—	—	—	14.60	
July 16.....	11.81	—	—	—	—	—	—	—	—	10.21	
July 17.....	12.24	0.78	0.90	1.03	1.17	1.32	1.00	0.81	—	9.14	
July 31.....	13.13	—	—	—	0.84	1.20	—	—	—	14.10	
Means.....	(0.78)	(0.83)	0.85	1.02	1.25	(1.00)	(0.81)	—	—	—	
Departures.....	+0.20	+0.17	+0.08	+0.12	+0.07	+0.02	+0.03	—	—	—	

Madison, Wis.

Date	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	mm.
July 2.....	7.87	—	0.88	1.00	1.15	1.36	—	—	—	9.83
July 5.....	10.97	—	—	—	1.07	—	—	—	—	14.10
July 9.....	13.61	—	—	—	1.15	1.42	—	—	—	11.81
July 10.....	9.83	0.77	0.88	1.00	1.13	1.37	—	—	—	11.38
July 15.....	9.83	—	—	—	—	1.27	1.07	—	—	10.21
July 16.....	9.14	—	—	—	—	1.12	1.04	—	—	12.68
July 18.....	11.38	—	—	0.92	1.08	1.27	—	—	—	13.61
July 19.....	7.29	—	0.86	1.02	1.17	1.37	1.17	—	—	7.29
July 25.....	16.20	—	—	0.89	0.94	—	—	—	—	17.37
July 30.....	11.81	—	—	—	1.12	1.35	—	—	—	13.13
July 31.....	13.13	—	—	1.00	1.15	1.31	—	—	—	15.65
Means.....	(0.77)	0.87	0.97	1.11	1.32	1.09	—	—	—	—
Departures.....	+0.12	+0.09	+0.07	+0.06	+0.04	+0.08	—	—	—	—

Lincoln, Nebr.

Date	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	mm.	
July 2.....	11.38	—	—	—	—	1.15	0.97	0.79	0.67	0.56	7.87
July 18.....	13.61	—	0.61	0.74	0.98	1.20	—	—	—	9.47	
July 20.....	10.97	—	—	—	—	—	—	—	—	13.13	
July 21.....	12.68	—	0.50	—	—	—	—	—	—	15.65	
July 25.....	16.20	—	—	0.77	0.95	1.22	—	—	—	16.20	
July 26.....	15.65	—	0.63	0.79	0.98	—	—	—	—	14.10	
July 27.....	14.10	—	0.79	0.92	—	—	—	—	—	15.11	
Means.....	—	0.63	0.80	0.97	(1.19)	(1.00)	(0.82)	(0.70)	(0.56)	—	
Departures.....	—	-0.15	-0.09	-0.11	-0.14	-0.06	-0.06	-0.04	-0.11	—	

1 Extrapolated.

TABLE 2.—*Solar and sky radiation received on a horizontal surface*
[Gram-calories per square centimeter of horizontal surface]

Week beginning	Average daily radiation						Average daily departure from normal						
	Washington	Madison	Lincoln	Chicago	New York	Twin Falls	Fresno	La Jolla	Washington	Madison	Lincoln	Chicago	New York
1929	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.
July 2.....	643	491	529	373	427	851	721	390	+142	-42	-49	-103	+17
July 9.....	533	501	404	378	417	811	740	—	+51	-30	-166	-39	+12
July 16.....	561	574	583	512	368	767	710	485	+85	+63	+13	+95	-34
July 23.....	563	516	569	359	362	764	681	481	+85	+23	+30	-51	-35
Excess or deficiency since first of year on July 30.....	—	—	—	+3,150	-1,148	-1,832	-819	-3,899	—	—	—	—	—

RECORDS OF THE TOTAL SOLAR RADIATION (DIRECT + DIFFUSE), RECEIVED ON A HORIZONTAL SURFACE IN SOUTHERN CALIFORNIA

By H. H. KIMBALL

In a recent letter Mr. Burt Richardson transmits the solar radiation values given in Tables 1_a and 1_b. Those given in Table 1_a were obtained from automatic records

made by a Weather Bureau type of thermoelectric pyrheliometer recording on an Engelhard microammeter, type S-1. Those given in Table 1_b were computed by Richardson from the rates of evaporation measured in a pan by a method described in a paper by himself and Carol Montgomery jointly.¹

These records of the total solar radiation (direct + diffuse), received on a horizontal surface are of special interest. They are the first measurements of the kind received from southern California, and they afford an opportunity to compare computed with measured results.

The recording pyrheliometer is now in continuous operation at La Jolla, and Mr. Richardson has kindly agreed to furnish weekly averages each month for publication in the MONTHLY WEATHER REVIEW in Table 2 under Solar Observations.

The pyrheliometer is installed on the top of an elevated water tank, where it has free exposure to sun and sky except for hills to the east which cut off the early morning rays of the sun when the sky is free from cloud and fog. Early morning fogs are frequent at certain seasons of the year.

TABLE 1_a.—*Daily totals of solar radiation (direct + diffuse), received on a horizontal surface at Scripps Institution of Oceanography, La Jolla (San Diego), Calif. Lat. 32° 37' N., long. 117° 25' W.*

Date	1929						1928					
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	305	157	424	510	557	—	662	—	—	—	—	320
2.....	291	337	373	397	540	—	627	—	—	—	—	209
3.....	251	329	433	412	531	—	669	—	—	—	—	106
4.....	262	277	433	208	507	—	679	—	—	—	—	305
5.....	302	266	334	432	389	—	621	—	—	—	—	107
6.....	141	77	262	538	520	—	614	—	—	—	—	331
7.....	284	149	310	532	521	—	610	—	—	—	—	298
8.....	281	170	363	493	496	—	591	—	—	—	—	312
9.....	256	376	306	389	552	—	666	—	—	—	—	305
10.....	313	374	201	534	555	—	605	—	—	—	—	182
11.....	314	381	405	511	576	—	587	—	—	—	—	333
12.....	344	373	362	481	472	—	472	—	—	—	—	300
13.....	300	384	442	499	456	—	483	—	—	—	—	206
14.....	250	289	354	537	317	—	634	—	—	—	—	127
15.....	67	365	402	—	475	—	571	—	—	—	—	296
16.....	207	384	369	455	318	—	601	—	—	—	—	293
17.....	294	211	202	322	—	—	604	—	—	—	—	315
18.....	257	183	208	288	—	—	580	—	—	—	—	301
19.....	138	375	429	391	—	—	632	—	—	—	—	244
20.....	231	395	418	499	—	—	482	—	—	—	—	300
21.....	251	384	251	472	—	—	534	—	—	—	—	306
22.....	312	391	143	433	—	—	433	—	—	—	—	317
23.....	199	256	372	518	—	—	364	—	—	—	—	307
24.....	346	404	495	495	—	—	276	—	—	—	—	197
25.....	323	304	497	429	—	—	238	—	—	—	—	300
26.....	332	404	535	189	—	—	517	—	—	—	—	345
27.....	172	425	547	332	—	—	592	—	—	—	—	123
28.....	320	423	415	259	—	—	489	—	—	—	—	293
29.....	330	—	343	485	—	—	475	—	—	—	—	281
30.....	207	—	219	522	—	—	410	—	—	—	—	356
31.....	106	—	461	—	—	—	579	—	—	—	—	314
Monthly means.....	264	316	365	433	487	504	545	—	—	—	—	298
												275

MONTHLY MEANS FOR PASADENA, CALIF., LAT. 34° 15' N., LONG. 118° 17' W.

1926-1928	302	383	427	532	568	512	582	568	490	400	365	316
San Diego, Calif. Computed by Pan method.	—	—	—	—	—	—	—	—	—	—	—	662
La Jolla, Calif. Computed by Pan method.	—	—	—	—	—	—	—	—	—	—	—	545